AMENDMENTS TO THE DRAWINGS:

Please note the amendments to Figure 5A, as follows:

The diffraction angle between the normal line (indicated with a long dashed short dashed line in the drawing) extending through the center of a lens 152 and 0th-order diffraction light 142 is "sinφ". The diffraction angle between the normal line extending through the center of the lens 152 and first-order diffraction light 143 is "sinα". The coordinate of the 0th-order diffraction light 142 on the lens 152 is "r0". The coordinate of the first-order diffraction light 143 on the lens 152 is "r1". The distance from the normal line to the coordinate expressed as r0 is "|r0|". The distance from the normal line to the coordinate expressed as r1 is "|r1|." From the amendment, the following formulae are defined:

$$\sin\varphi = |r0|,\ \sin\alpha = |r1|,\ |r0|+|r1| = \lambda/P,\ \sin\theta 1 = |r0|+|r1|$$

Please note the amendments to Figure 5B, as follows:

The coordinate of the 0th-order diffraction light 142 on the lens 152 is "r0". The coordinate of the first-order diffraction light 143 on the lens 152 is "r1". The distance from the normal line to the coordinate expressed as r0 is "|r0|". The distance from the normal line to the coordinate expressed as r1 is "|r1|."

Please note the amendments to Figure 5C, as follows:

The diffraction angle between the normal line (indicated with a long dashed short dashed line in the drawing) extending through the center of the lens 152 and the 0th-order diffraction light 142 is "sinφ". The diffraction angle between the normal line extending through the center

of a lens 152 and the first-order diffraction light 143 is "sinα". The coordinate of the 0th-order diffraction light 142 on the lens 152 is "r0". The coordinate of the first-order diffraction light 143 on the lens 152 is "r1". The distance from the normal line to the coordinate expressed as r0 is "|r0|". The distance from the normal line to the coordinate expressed as r1 is "|r1|." From the amendment, the following formulae are defined:

$$\sin\varphi = |r0|,\ \sin\alpha = |r1|,\ |r0| + |r1| = \lambda/P,\ \sin\theta 1 = |r0| + |r1|$$

Please note the amendments to Figure 6D, as follows:

The diffraction angle between the normal line (indicated with a long dashed short dashed line in the drawing) extending through the center of the lens 152 and the 0th-order diffraction light 142 is "sinφ". The diffraction angle between the normal line extending through the center of a lens 152 and the second-order diffraction light 145 is "sinβ". The coordinate of the 0th-order diffraction light 142 on the lens 152 is "r0". The distance from the normal line to the coordinate expressed as r0 is "|r0|." From the amendment, the following formulae are defined:

$$\sin\varphi = |r0|,\ \sin\beta = NA,\ |r0| + NA = 2\lambda/P,\ \sin\theta 2 = |r0| + NA$$

Two Replacement Drawing Sheets are attached to this Amendment.

REMARKS

I. Introduction

In response to the pending Office Action, Applicant has amended claims 1, 3, 4, 7-9, 11, 15, 26, 28, 39 and 43-50, added new claims 66-68, and cancelled claims 5, 6, 10, 12-14, 16-25, 27, 29-38, 41, 42, 51-56 in order to correct any inadvertent errors and to further clarify the subject matter of the present invention. Claims 4, 7, 11, 15, 26, 43 and 47-48 have been amended to reflect amended dependency upon other claims. Accordingly, the sole independent claims pending in the application are claims 1 and 39. Support for claim 1 can be found, for example, in Fig. 3A its description in the specification. Support for claim 28 can be found, for example, in original claims 4 and 26. Support for claim 39 can be found, for example, in original claim 42. Support for new claims 66 and 67 can be found, for example, on page 30, line 24 - page 31, line 1 of the specification. Support for new claim 68 can be found, for example, in original claim 15. It is noted that the amendments correspond to the amended claims of the corresponding Japanese patent application No. 2003-380154, which has been allowed. No new matter has been added.

Furthermore, Applicant has amended the title of the invention to more clearly describe the subject matter of the invention, and have amended drawings 5A-5C and 6D to correspond more closely to the description in page 43, lines 5-24, and page 45, lines 6-18 of the specification and well-known technique. No new matter has been added.

For the reasons set forth below, Applicant respectfully submits that all pending claims are patentable over the cited prior art.

II. The Rejection Of Claims 1-56 Under 35 U.S.C. § 102

Claims 1-3 and 26 were rejected under 35 U.S.C. § 102(b) as being anticipated by Yasuzato et al. (USP No. 6,355,382) and claims 1-56 were rejected under 35 U.S.C. § 102(a) as being anticipated by Misaka (EP 1241523). Applicant respectfully submits that both Yasuzato and Misaka fail to anticipate the pending claims for at least the following reasons.

With regard to the present invention, claims 1 and 39 recite, in-part, a photomask comprising: a mask pattern formed on a transparent substrate; and a transparent portion of said transparent substrate where said mask pattern is not formed, wherein said mask pattern includes a main pattern to be transferred through exposure and an auxiliary pattern that diffracts exposing light and is not transferred through the exposure, said main pattern is composed of a first semi-shielding portion that has first transmittance for partially transmitting said exposing light and transmits said exposing light in an identical phase with respect to said transparent portion, and a phase shifter that transmits said exposing light in an opposite phase with respect to said transparent portion. Furthermore, claim 1 also recites, said auxiliary pattern is made from a second semi-shielding portion that has second transmittance for partially transmitting said exposing light and transmits said exposing light in the identical phase with respect to said transparent portion, and a pattern width of said auxiliary pattern is smaller than that of said main pattern.

In contrast to the present invention, the main pattern 1 disclosed in Yasuzato is a transparent portion comprising an opening area provided by removing a light shielding film 3 formed on a transparent substrate 4 (see Figure 17(b) of Yasuzato) while the main pattern in the present invention is composed of a first semi-shielding portion and a phase shifter.

Furthermore, the first line-shaped auxiliary pattern 2a disclosed in Yasuzato is obtained by etching the transparent substrate 4(see Figure 17(b) of Yasuzato). In this case, the first line-shaped auxiliary pattern 2a transmits whole exposing light and has transmittance of 100%. Therefore, the feature of Yasuzato is also different from that of the amended claim 1 of the present invention in that the auxiliary pattern of the present invention is made from the second semi-shielding portion that has second transmittance for partially transmitting the exposing light.

Thus, Yasuzato fails to disclose a photomask comprising a mask pattern formed on a transparent substrate; wherein said mask pattern includes a main pattern to be transferred through exposure, said main pattern is composed of a first semi-shielding portion that has first transmittance for partially transmitting said exposing light and said auxiliary pattern is made from a second semi-shielding portion that has second transmittance for partially transmitting said exposing light.

Turning now to Misaka, Misaka discloses a photomask in which an isolated light-shielding pattern comprises a light-shielding film region 101 formed from a light-shielding film; and a phase shift region 102 formed in the light-shielding film region 101, which are formed on a transparent substrate 100 (see Figure 1 of Misaka). As can be seen, in contrast to the present invention, in Misaka does not teach or disclose any auxiliary pattern that diffracts exposing light and is not transferred through the exposure.

Furthermore, in the isolated light-shielding pattern of Misaka, the light-shielding film region 101 formed from the light-shielding film transmits no exposing light. Therefore, the feature of Misaka is different from that of the amended claims 1 and 39 of the present invention in that the first semi-shielding portion in the mask pattern of the present invention has first

transmittance for partially transmitting said exposing light. Thus, Misaka fails to disclose a mask pattern formed on a transparent substrate; wherein said mask pattern includes a main pattern to be transferred through exposure and an auxiliary pattern ... said main pattern is composed of a first semi-shielding portion that has first transmittance for partially transmitting said exposing light.

As anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), and at a minimum, both Yasuzato and Misaka do not disclose a photomask comprising a mask pattern formed on a transparent substrate; and a transparent portion of said transparent substrate where said mask pattern is not formed, wherein said mask pattern includes a main pattern to be transferred through exposure and an auxiliary pattern that diffracts exposing light and is not transferred through the exposure, and where said main pattern is composed of a first semi-shielding portion that has first transmittance for partially transmitting said exposing light and said auxiliary pattern is made from a second semi-shielding portion that has second transmittance for partially transmitting said exposing light, it is clear that both Yasuzato and Misaka do not anticipate claims 1 and 39, or any dependent claims thereon of the present invention.

III. The Rejection Of Claims 1-56 Under 35 U.S.C. § 103

Claims 1-56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yasuzato in view of Misaka. Applicant respectfully traverses these rejections for at least the following reasons.

In the photomask disclosed in Yasuzato, the light shielding film 3 is formed on a region of the transparent substrate 4 where the line-shaped main pattern 1, the first line-shaped auxiliary patterns 2a and the second line-shaped auxiliary patterns 2b are not formed (see Figure 17(b) of Yasuzato). On the other hand, in the photomask disclosed in Misaka, no pattern is formed on a region of the transparent substrate 100 where the isolated light-shielding pattern formed from the light-shielding film region 101 and the phase shift region 102 is not formed, and a surface of the region of the transparent 100 is exposed. Therefore, if the main pattern 1 in Yasuzato is replaced with the isolated light-shielding pattern in Misaka, a light-shielding pattern is disposed in an area surrounded by the light shielding film 3, which would render it technologically impossible to use the isolated light-shielding pattern of Misaka in the photomask of Yasuzato.

Moreover, the light-shielding film region 101 disclosed in Misaka is formed from the light shielding film, which is different from the structure of the amended claims 1 and 39 of the present invention in that the first semi-shielding portion has first transmittance for partially transmitting said exposing light. Accordingly, neither Yasuzato nor Misaka disclose the structure of the photomask as explained in the present invention. Thus, even if Yasuzato could be combined with Misaka, the structure of the photomask disclosed in the present invention is not anticipated.

Furthermore, it is submitted that the proposed combination is improper because the Examiner has not provided the requisite ***objective*** evidence ***from the prior art*** that "suggests the desirability" of the proposed combination. As is well known in patent law, a *prima facie* showing of obviousness can only be established if the prior art "suggests the desirability" of the proposed combination using ***objective*** evidence. Accordingly, the Examiner is directed to MPEP

§ 2143.03 under the subsection entitled "Fact that References Can Be Combined or Modified is Not Sufficient to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

> The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. (*In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990)).

In the instant case, even assuming *arguendo* that Yasuzato et al. can be modified by Misaka, it is submitted that the mere fact that the references can be combined ... does not render the resultant combination obvious because nowhere does the ***prior art*** "suggest the desirability of the combination" as set forth by the Examiner. Furthermore, as the Applicant has shown that the combination proposed by the Examiner is not only not desirable, but likely impossible, Applicant respectfully submits that the combination of Yasuzato and Misaka, do not render claims 1 and 39 obvious.

Moreover, the combination of Yasuzato and Misaka do not teach each and every limitation of the present invention. As is well known in order to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (citing *In re Royka*, 180 USPQ 580 (CCPA 1974)).

In the instant case, the pending rejection does not "establish *prima facie* obviousness of [the] claimed invention" as recited in claims 1-56 because the proposed combination fails the "all the claim limitations" standard required under § 103. Specifically, as described above, both Yasuzato and Misaka fail to disclose a photomask comprising a mask pattern formed on a transparent substrate; and a transparent portion of said transparent substrate where said mask pattern is not formed, wherein said mask pattern includes a main pattern to be transferred through exposure and an auxiliary pattern that diffracts exposing light and is not transferred

through the exposure, said main pattern is composed of a first semi-shielding portion that has first transmittance for partially transmitting said exposing light.

Accordingly, it is respectfully requested that the § 103 rejection of claims 1 and 39, and any pending claims dependent thereon be withdrawn.

IV. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1 and 39 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

V. Conclusion

Having fully responded to all matters raised in the Office Action, Applicant submits that all claims are in condition for allowance, an indication of which is respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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